

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of: William L. Black
Steven J. Marian

Serial No.: 10/679,180

Filed: October 3, 2003

For: Method And Apparatus For Determining A
Position Of A Location Dependent Device

Examiner: A.Gilman

Group Art Unit: 2833

Att'y Docket: 2063.005800

Client Docket: VS-00614

Confirmation No.: 2309

APPEAL BRIEF

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby submits this Appeal Brief to the Board of Patent Appeals and Interferences in response to the final Office Action dated August 3, 2006. A Notice of Appeal was filed on September 27, 2006 and so this Appeal Brief is believed to be timely filed.

A fee of \$500.00 is due for filing this Appeal Brief. The Commissioner is authorized to deduct the fee for filing this Appeal Brief (\$500) from **Williams, Morgan & Amerson's P.C. Deposit Account 50-0786/2063.005800.**

I. REAL PARTY IN INTEREST

The present application is owned by Lockheed Martin, Inc. The assignment of the present application to Lockheed Martin, Inc., is recorded at Reel 014583, Frame 0076.

II. RELATED APPEALS AND INTERFERENCES

Applicant is not aware of any related appeals and/or interferences that might affect the outcome of this proceeding.

III. STATUS OF THE CLAIMS

Claims 1-21 are pending in the application. Claims 1-11, 13-19, and 21 stand provisionally rejected under 35 U.S.C. § 101 as allegedly claiming the same invention as that of claims 1-14 and 18-25 of co-pending Patent Application Serial No. 10/649,074. Claims 1 and 8-11 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Rafert (U.S. Patent No. 6,497,659). Claims 1, 13, and 21 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Takagi (U.S. Patent No. 6,441,748). Claims 1-6, 8, 11, 13-14, and 17-19 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Card (U.S. Patent No. 5,576,698). Although the Office Action Summary indicated that claim 20 was rejected, the Examiner provided no detailed explanation of this rejection. For the purposes of this appeal, Applicants will assume that claim 20 includes allowable subject matter.

IV. STATUS OF AMENDMENTS

There were no amendments after the final rejections.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 sets forth an interconnect for a location dependent device. The interconnect includes at least one bus adapted to provide at least one bus signal to the location dependent device and a plurality of electrical contacts external to the location dependent device. The electrical contacts are capable of providing a signal indicative of a physical location of the location dependent device when the location dependent device is installed.

Figures 3A-C illustrate three alternative embodiments of the interconnect set forth in claim 1. Although the present invention is not so limited, each of the alternative embodiments illustrated in Figures 3A-C include three leads 300 coupled to three electrical contacts 301. The three leads 300 and the three electrical contacts 301 may provide bus signals to the attitude control motor. For example, the three leads 300 and the three electrical contacts 301 may provide a control signal, a command signal, and a power signal to the attitude control motor when the attitude control motor is installed. The interconnect circuit also includes a first electrical contact 305, 330 that may be coupled to one or more second electrical contacts 310(1-6), 335. When installed, the attitude control motor may use the electrical contacts 305, 310(1-6), 330, 335 to determine the physical location of the attitude control motor. See Patent Application, page 9, line 1 – page 11, line 16.

Independent claim 13 sets forth a system for determining a position of at least one location dependent device deployed on a vehicle. The system includes at least one bus capable of transmitting at least one bus signal and a plurality of interconnects. The interconnects are each capable of receiving the bus signal from the bus and providing the bus signals to at least one location dependent device associated with the interconnect. The system also includes a plurality of electrical contacts. At least two of the plurality of electrical contacts are associated with each

of the interconnects and are capable of providing a signal indicative of a physical location of the interconnect to the location dependent device associated with the interconnect when the location dependent device is installed.

Figure 2 shows one embodiment of the system set forth in claim 13. The system includes a bus 220 that may be coupled to at least one electrical contact 215 formed on each of the flexible interconnects 210. For example, the bus 220 may be formed of wires, leads, traces, ribbon tape, or any suitable flexible substrate known in the printed circuit art that may be deployed proximate the flexible substrate 200 and may permit the bus 220 to be coupled to the at least one electrical contact 215. As discussed above, the bus 220 may provide one or more bus signals to the at least one electrical contact 215. When installed, the attitude control motors may contact the at least one electrical contact 215 and receive bus signals from the bus 220. The flexible interconnects 210 include a circuit 225 capable of providing a signal indicative of a physical location of the attitude control motor, when the attitude control motor is installed. See Patent Application, page 8, line 12 – page 9, line 1.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellant respectfully requests that the Board review and overturn the four rejections present in this case. The following issues are presented on appeal in this case:

- (A) Whether claims 1-11, 13-19, and 21 claim the same invention as that of claims 1-14 and 18-25 of co-pending Patent Application Serial No. 10/649,074;
- (B) Whether claims 1 and 8-11 are anticipated by Rafert;
- (C) Whether claims 1, 13, and 21 are anticipated by Takagi; and
- (D) Whether claims 1-6, 8, 11, 13-14, and 17-19 are anticipated by Card.

VII. ARGUMENT

A. Legal Standards

Determining whether a statutory basis for a double patenting rejection exists, the question to be asked is: Is the same invention being claimed twice? 35 U.S.C. 101 prevents two patents from issuing on the same invention. "Same invention" means *identical* subject matter. (Emphasis Added) See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970). A reliable test for double patenting under 35 U.S.C. 101 is whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent. *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970). See also, MPEP 804.II.A.

An anticipating reference by definition must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). Inherency in anticipation requires that the asserted proposition *necessarily* flow from the disclosure. *In re Oelrich*, 212 U.S.P.Q. (BNA) 323, 326 (C.C.P.A. 1981); *Levy*, 17 U.S.P.Q.2d (BNA) at 1463-64; *Skinner*, at 1789; *In re King*, 231 U.S.P.Q. (BNA) 136, 138 (Fed. Cir. 1986). It is not enough that a reference could have, should have, or would have been used as the claimed invention. "The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Oelrich*, at 326, quoting *Hansgirk v. Kemmer*, 40 U.S.P.Q. (BNA) 665, 667 (C.C.P.A. 1939); *In re Rijckaert*, 28 U.S.P.Q.2d (BNA) 1955, 1957 (Fed. Cir. 1993), quoting *Oelrich*, at 326; *see also Skinner*, at 1789. "Inherency... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Ex parte Skinner*, 2 U.S.P.Q.2d

(BNA) 1788, 1789 (Bd. Pat. App. & Int. 1987), citing *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981).

B. Claims 1-11, 13-19, and 21 do not claim the same invention as that of claims 1-14 and 18-25 of co-pending Patent Application Serial No. 10/649,074.

Claims 1-11, 13-19, and 21 set forth an interconnect for a location dependent device, such as may be deployed on an automobile, whereas claims 1-14 and 18-25 of co-pending Application No. 10/649,074 set forth an interconnect for an attitude control device, such as may be deployed on a missile. Applicants note that the "location dependent device" and "attitude control device" recited in the preamble of the corresponding claims also provide antecedent bases for these elements in the body of the claims. The terms "location dependent device" and "attitude control device" recited in the preamble of the corresponding claims therefore breathe life and meaning into the claim. Consequently, Applicants respectfully submit that the terms "location dependent device" and "attitude control device" recited in the preamble limit the structure of the claimed invention and therefore must be treated as a claim limitation.

Applicants respectfully submit that the structure of an interconnect for an attitude control device (as set forth in claim 1-14 and 18-24) is not the same as the structure of an interconnect that may be used with any location dependent device. A reliable test for double patenting under 35 U.S.C. 101 is whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent. *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970). Applicants submit that devices may be found that infringe one set of claims but not the other set of claims. For example, a location dependent device such as an airbag deployed in a car is clearly not an attitude control device and therefore a claim directed to an interconnect for an

airbag would not infringe a claim directed to an interconnect for an attitude control device. Thus, one claim is clearly broader than the other and therefore the two claims are not of the same scope. Accordingly, a review of the entirety of the record indicates that the preamble recitations of "an interconnect for a location dependent device" and "an interconnect for an attitude control device" are not identical.

In response to the above arguments, the Examiner alleges that the terms "location dependent device" and "attitude control device" are not "patentably distinct." Applicants respectfully submit that this is an incorrect standard for determining whether or not claims 1-11, 13-19, and 21 claim the same invention as that of claims 1-14 and 18-25 of co-pending Patent Application Serial No. 10/649,074. As conceded in the final Office action, the term "same invention," in this context, means an invention drawn to identical subject matter. (Emphasis Added) See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970). Applicants respectfully submit that in order to reject the pending claims under 35 U.S.C. § 101, the claims must be identical. Simply alleging that the claims are not "patentably distinct" is insufficient to establish that the claims are directed to identical subject matter.

For at least the aforementioned reasons, Applicants respectfully submit that the Examiner has applied an improper standard in rejecting claims 1-11, 13-19, and 21 under 35 U.S.C. § 101. Applicants also submit that claims 1-11, 13-19, and 21 do not claim the same invention as claims 1-14 and 18-24 of co-pending Application No. 10/649,074 and request that the Examiner's rejections of these claims under 35 USC 101 be REVERSED.

C. Claims 1 and 8-11 are not anticipated by Rafert.

Rafert describes a system for identifying a cable transmitting a signal from a sensor 10 to an electronic instrument 18. For example, a cable 12 that is connected to the sensor 10 may be connected to the electronic instrument 18 using connectors 14, 16. The sensor 10 may therefore be deployed remote from the electronic instrument 18 and the connectors 14, 16. See Rafert, col. 1, ll. 21-52 and Figure 1. Rafert is concerned with distinguishing cables from each other in a medical environment so that the cables may be quickly and accurately connected to the proper instruments. See Rafert, col. 2, ll. 36-42. Consequently, a connector 20 described by Rafert includes a capacitor 22 (or other electrical circuit), which may be identified by the microprocessor 30, *e.g.*, by applying a voltage to the capacitor 22 and measuring an RC time constant. See Rafert, col. 4, ll. 37-67 and Figure 2.

However, the device described by Rafert differs from the claimed invention in numerous ways. For example, Rafert does not teach or suggest that the sensor 10 is a location dependent device. To the contrary, Rafert appears to be unconcerned with the location of the sensor 10. For another example, the cable 12 is not a bus, as this term is understood to persons of ordinary skill in the art because the cable 12 only provides a direct connect between the sensor 10 and the electronic instrument 18 and does not permit any other devices to transmit or receive data. For yet another example, the capacitor 22 (or other electrical circuit) in the connector 20 does not provide a signal indicative of a physical location of the location dependent device when the location dependent device is installed. For example, the capacitor 22 (or other electrical circuit) indicates that the sensor associated with the capacitor 22 (or other electrical circuit) is connected, but it provides no indication of the location of the sensor 10. The Examiner notes that the capacitor 22 indicates that the connector associated with the sensor 10 is properly mated to a

connector associated with the electronic instrument 18. However, Applicants respectfully submit that no indication of the location of the sensor 10 is provided by determining whether or not the sensor 10 and electronic instrument 18 connectors are properly mated. To the contrary, the location of the sensor 10 relative to the electronic instrument 18 may vary even after the connectors have been mated. The range of possible locations of the sensor 10 may be limited only by the length and/or flexibility of the cable 12.

For at least this aforementioned reasons, Applicants respectfully submit that the present invention is not anticipated by Rafert and request that the Examiner's rejections of claims 1 and 8-12 under 35 U.S.C. 102(e) be REVERSED.

D. Claims 1, 13, and 21 are not anticipated by Takagi.

Takagi describes a container 22 having connectors 14, a power bus 15, and a signal bus 16 to enable connection of sensor units 1 to external units. See Takagi, col. 2, line 35 – col. 3, line 5 and col. 4, ll. 27-32, as well as Figures 3-4 and 7. A differential global positioning system unit 20 may be disposed in a slot 17 of the container 22. The differential GPS unit 20 may provide wireless transmission of global positioning data and signals related to the road surface conditions as sensed by the sensor units 1. In the Final Office Action, the Examiner alleges that Takagi inherently describes contacts within the differential GPS unit 20 that are capable of providing a signal indicative of a physical location of the location dependent device when the location dependent device is installed, as set forth in claims 1 and 13.

Inherency in anticipation requires that the asserted proposition *necessarily* flow from the disclosure. *In re Oelrich*, 212 U.S.P.Q. (BNA) 323, 326 (C.C.P.A. 1981); *Levy*, 17 U.S.P.Q.2d (BNA) at 1463-64; *Skinner*, at 1789; *In re King*, 231 U.S.P.Q. (BNA) 136, 138 (Fed. Cir. 1986).

It is not enough that a reference could have, should have, or would have been used as the claimed invention. "The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Oelrich*, at 326, quoting *Hansgirk v. Kemmer*, 40 U.S.P.Q. (BNA) 665, 667 (C.C.P.A. 1939); *In re Rijckaert*, 28 U.S.P.Q.2d (BNA) 1955, 1957 (Fed. Cir. 1993), quoting *Oelrich*, at 326; *see also Skinner*, at 1789. "Inherency... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Ex parte Skinner*, 2 U.S.P.Q.2d (BNA) 1788, 1789 (Bd. Pat. App. & Int. 1987), citing *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981).

With regard to independent claim 1, Applicants respectfully submit that Takagi does not inherently describe or suggest a plurality of contacts external to the location dependent device and capable of providing a signal indicative of a physical location of a location dependent device when the location dependent device is installed. To the contrary, even the Examiner alleges that the differential GPS unit 20 described in Takagi transmits GPS signals using electrical components that are located within the differential GPS unit 20. See Final Office Action, page 5. Thus, Takagi fails to teach or suggest (either explicitly or inherently) a plurality of contacts external to the location dependent device and capable of providing a signal indicative of a physical location of the location dependent device when the location dependent device is installed, as set forth in claim 1

With regard to independent claim 13, Applicants respectfully submit that Takagi does not inherently describe or suggest a plurality of electrical contacts capable of providing a signal indicative of a physical location of an interconnect to the location dependent device associated with the interconnect when the location dependent device is installed. To the contrary, Takagi teaches that the differential GPS units 20 provide wireless transmission of global positioning

data and signals related to the road surface conditions. Applicants respectfully submit that the differential GPS units 20 transmits GPS signals to devices other than the sensor units 1 described by Takagi. Thus, Takagi fails to teach or suggest (either explicitly or inherently) a plurality of electrical contacts capable of providing a signal indicative of a physical location of an interconnect to the location dependent device associated with the interconnect when the location dependent device is installed, as set forth in claim 13.

For at least this aforementioned reason, Applicants respectfully submit that the present invention is not anticipated by Takagi and request that the Examiner's rejections of claims 1, 13, and 21 under 35 U.S.C. 102(b) be REVERSED.

E. Claims 1-6, 8, 11, 13-14, and 17-19 are not anticipated by Card.

Card describes a technique for indicating an address of a module connected to a bus using a plurality of pins. See Card, Figures 3 and 4, and related discussion. Card refers to this technique as "physical addressing of modules." However, in the context of Card, "physical addressing of modules" refers to using a physical mechanism to determine a logical address. The address described by Card is a bus address and not an address indicating a physical location. Card is completely silent with regard to the physical location of the modules coupled to the bus. To the contrary, the device described by Card is only concerned with the logical address of the module and the physical location of the module is irrelevant. Card therefore fails to teach or suggest a plurality of contacts capable of providing a signal indicative of a physical location of the location dependent device when the location dependent device is installed, as set forth in claims 1 and 13.

The Examiner admits in the Final Office Action that Card does not use the term "physical location" but nevertheless alleges that Card indicates a physical location of the elements relative to each other. Applicants respectfully disagree. Card refers to a technique for indicating an address of a module connected to a bus using a plurality of pins as "physical addressing of modules." However, in the context of Card, "physical addressing of modules" refers to using a physical mechanism to determine a logical address. The address described by Card is a bus address and not an address indicating a physical location. Card is completely silent with regard to the physical location of the modules coupled to the bus and the techniques described in Card do not indicate relative locations of elements. To the contrary, the device described by Card is only concerned with the logical address of the module and the physical location of the module is irrelevant. Card therefore fails to teach or suggest a plurality of contacts capable of providing a signal indicative of a physical location of the location dependent device when the location dependent device is installed, as set forth in claims 1 and 13.

For at least this aforementioned reason, Applicants respectfully submit that the present invention is not anticipated by Card and request that the Examiner's rejections of claims 1-6, 8, 11, 13-14, and 17-19 under 35 U.S.C. 102(b) be REVERSED.

VIII. CLAIMS APPENDIX

The claims that are the subject of the present appeal – claims 1-21 – are set forth in the attached "Claims Appendix."

IX. EVIDENCE APPENDIX

There is no separate Evidence Appendix for this appeal.

X. RELATED PROCEEDINGS APPENDIX

There is no Related Proceedings Appendix for this appeal.

XI. CONCLUSION

In view of the foregoing, it is respectfully submitted that the Examiner erred in not allowing all claims pending in the present application, claims 1-21, over the prior art of record. The undersigned may be contacted at (713) 934-4052 with respect to any questions, comments or suggestions relating to this appeal.

Respectfully submitted,

Date: October 23, 2006

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AGENT FOR APPLICANTS

CLAIMS APPENDIX

1. An interconnect for a location dependent device, comprising:
at least one bus adapted to provide at least one bus signal to the location dependent device; and
a plurality of electrical contacts external to the location dependent device and capable of providing a signal indicative of a physical location of the location dependent device when the location dependent device is installed.
2. The interconnect of claim 1, wherein the plurality of electrical contacts includes:
a first electrical contact capable of providing a reference; and
at least one second electrical contact electrically coupled to the first electrical contact, the second electrical contact being adapted to contact a corresponding electrical contact on the location dependent device when the location dependent device is installed.
3. The interconnect of claim 2, wherein the at least one second electrical contact is at least one of a socket and a solderable electrical contact.
4. The interconnect of claim 2, wherein the first electrical contact is adapted to contact a corresponding electrical contact on the location dependent device when the location dependent device is installed.
5. The interconnect of claim 4, wherein the first electrical contact is at least one of a socket and a solderable electrical contact.

6. The interconnect of claim 1, wherein the electrical contact includes:
a first electrical contact capable of providing a reference; and
at least one second electrical contact optionally electrically coupled to the first electrical contact, the at least one second electrical contact being adapted to contact a corresponding electrical contact on the location dependent device when the location dependent device is installed.
7. The interconnect of claim 6, further comprising at least one fuse deployed intermediate the first electrical contact and the at least one second electrical contact such that the at least one second electrical contact is capable of being optionally electrically coupled to the first electrical contact.
8. The interconnect of claim 1, further comprising at least one circuit element deployed intermediate the first electrical contact and the at least one second electrical contact.
9. The interconnect of claim 8, wherein the at least one circuit element comprises at least one of a resistor, a capacitor, a voltage reference circuit, and a trace having a selected resistance.
10. The interconnect of claim 9, wherein at least one of a trace length and a trace cross-section are selected to provide the selected trace resistance.

11. The interconnect of claim 1, wherein the at least one bus comprises at least one trace adapted to provide at least one of a control signal, a command signal, and a power signal to the location dependent device.

12. The interconnect of claim 1, wherein the location dependent device is at least one of a motor, an initiator, and a sensor.

13. A system for determining a position of at least one location dependent device deployed on a vehicle, comprising:

at least one bus capable of transmitting at least one bus signal;

a plurality of interconnects, each being capable of receiving the bus signal from the bus and providing the bus signals to at least one location dependent device associated with the interconnect; and

a plurality of electrical contacts, at least two of the plurality of electrical contacts being associated with each of the interconnects and being capable of providing a signal indicative of a physical location of the interconnect to the location dependent device associated with the interconnect when the location dependent device is installed.

14. The system of claim 13, wherein each of the electrical contacts associated with each of the plurality of interconnects includes:

a first electrical contact capable of providing a reference; and

at least one second electrical contact electrically coupled to the first electrical contact, the second electrical contact being adapted to contact a corresponding electrical contact on the location dependent device when the location dependent device is installed.

15. The system of claim 14, further comprising at least one circuit element deployed intermediate the first electrical contact and the at least one second electrical contact.

16. The system of claim 15, wherein the at least one circuit element comprises at least one of a resistor, a capacitor, a voltage reference circuit, and a trace having at least one of a selected length and a selected cross section.

17. The system of claim 13, wherein each of the electrical contacts associated with each of the plurality of interconnects includes:

a first electrical contact capable of providing a reference; and

at least one second electrical contact optionally electrically coupled to the first electrical contact, the second electrical contact being adapted to contact a corresponding electrical contact on the location dependent device when the location dependent device is installed.

18. The system of claim 13, wherein the at least one bus comprises at least one trace adapted to provide at least one of a control signal, a command signal, and a power signal to the at least one location dependent device.

19. The system of claim 13, further comprising a controller communicatively coupled to the bus and capable of providing the bus signal comprising at least one of a control signal, a command signal, and a power signal to the bus.

20. The system of claim 13, wherein the location dependent device is at least one of a location dependent sensor, a location dependent initiator, and a location dependent motor.

21. The system of claim 13, wherein the vehicle is at least one of an automobile and an airborne vehicle.